PRIME VSAR 2.3.0

API Guide

April 2026

SINCE DAY ONE.

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Introduction

This document explains the API to remote control VSAR – Unreal Engine 5.

Help and Support

For contact information or our online helpdesk, please visit our support page at chyronhego.com/support/overview.

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Connection

Each VSAR server is connected to a Data Engine instance. PRIME VSAR is listening to bucket: "ue4" and key: "lua_in"

Note: "ue4" name is retained from ue4 due to backward compatibility

Actor Class Commands

Actor(InActorID, index)

The constructor tries to match the unique ActorID first, if it's unsuccessful, it falls back to ActorName (label)

If the index is set to true or not set, it will search for the first occurrence of the ActorName.

If an index is set to a number and there are multiple occurrences, it will act like an index.

For example:

There are 4 actors named "Chair" in the level (ChairStuff, Chair_2, ChairStuff_16, ChairStuff)

Actor("Chair_2") will contain the Chair_2

Actor("Chair", true) will contain the first occurrence of Chair, which is found

Actor("Chair", 2) will contain the third occurrence of Chair, which is found

Actor("Chair") will contain the first occurrence of Chair, which is found

"Chair_2" has ID "StaticMeshActor_2"

Actor("StaticMeshActor_2") will contain the Chair_2

In the other classes/functions, when a parameter named InActorID is used with another parameter Index, it refers to this behavior.

GetActorByID(InActorID)

GetFirstActorByName(InActorName, index)

GetName()

Returns the name of the actor (as a FString)

Example:

PrintLog(Actor("Cube1").GetName()) -- prints the name of the found actor

GetClassName()

Move(x, y, z)

Move an actor by actor ID.

Example

Actor("Cube1").Move(960, 540, 0)

Rotate(pitch, yaw, roll)

Rotate an actor by actor ID

Example

Actor("Cube1").Rotate(360, 0, 0)

Scale(x, y, z)

Scale an actor by actor ID.

Example

Actor("Cube1").Scale(1, 10, 1)

Show( )

Show an actor by actor ID.

Example

Actor("Cube1").Show()

Hide( )

Hide an actor by actor ID.

Example

Actor("Cube1").Hide()

SetVisibility(bIsVisible)

Sets the visibility of the actor by ID.

Example

Actor("Cube1").SetVisibility(true)

SetMobility(InMobility)

CallBlueprintFunction(InFunctionName, Parameters ...)

Calls the actor's blueprint function by name

Examples:

Calling a function without parameters

Actor("TestLua").CallBlueprintFunction("FuncNoParam")

Calling a function with a string parameter

Actor("TestLua").CallBlueprintFunction("FuncStrParam", "Test")

Calling a function with a number parameter

Actor("TestLua").CallBlueprintFunction("FuncNumberParam", 42)

Calling a function with a vector parameter

Actor("TestLua").CallBlueprintFunction("FuncVectorParam", "(X=1.0, Y=2.0, Z=3.0)")

Calling a function with two parameters: LinearColor and a bool

Actor("TestLua").CallBlueprintFunction("FuncTwoParams", "(R=1.0, G=0.0, B=0.5, A=1.0)", false)

SetVar(InVarName, InValue)

Set an actor variable by actor name and variable path/name.

Examples:

Set a float value

Actor("TestLua", true).SetVar("FloatVar", 10.0)

Set a bool value

Actor("TestLua", true).SetVar("BoolVar", true)

Set X value in a Vector

Actor("TestLua", true).SetVar("VectorVar.X", 42)

We can also set a vector

Actor("TestLua", true).SetVar("VectorVar", ToFVector(10, 20, 30))

We can set a FLinearColor

Actor("TestLua", true).SetVar("LinearColorVar", ToFLinearColor(1, 0, 0, 1))

Or just the R value

Actor("TestLua", true).SetVar("LinearColorVar.G", 1.0)

GetVar(InVarName, InValue)

When using GetVar, it returns a JSON string containing the type, the name, and the value of the variable.

Examples:

Get the JSON string of the var "FloatVar"

local floatJson = Actor("TestLua", true).GetVar("FloatVar")

Decode the string

local floatDecoded = JSON:decode(FromFString(floatJson))

Print the value of FloatVar

PrintLog(floatDecoded.Name .. "=" .. floatDecoded.Value)

This also works for structs:

Get the JSON string of "VectorVar"

local vectorJson = Actor("TestLua", true).GetVar("VectorVar")

Decode the string

local vectorDecoded = JSON:decode(FromFString(vectorJson))

iterate and print each property

for i,v in pairs(vectorDecoded.Properties) do

PrintLog(v.Name .. "=" .. v.Value)

end

GetComponentByName(strNameOfComponentType)

Get a reference to the component in the Actor defined by its name of type.

local actor1 = Actor("TestActor1");

PrintLog(actor1.GetName());

local component = actor1.GetComponentByName("MtCamio2DText");

PrintLog(component.GetName());

GetComponents()

GetRootComponent()

Component Commands

Component(InComponent)

GetName()

GetClassName()

IsSceneComponent()

SetVisibility()

Show()

Hide()

Move(x, y, z)

Rotate(pitch, yaw, roll)

Scale(x, y, z)

SetMobility(InMobility)

CallBlueprintFunction(InFunctionName, Parameters, …)

SetVar(InVarPath, InValue)

Property Tools Commands

PropertyTools()

PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction)

Call a function without a parameter defined for the component.

local actor1 = Actor("TestActor1");

PrintLog(actor1.GetName());

local component = actor1.GetComponentByName("MtCamio2DText");

PrintLog(component.GetName());

PropertyTools.CallFunction(component.ObjectPtr, "Play");

PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction, strPar1)

Call the function with one parameter defined for the component.

local actor1 = Actor("TestActor1");

PrintLog(actor1.GetName());

local component = actor1.GetComponentByName("MtCamio2DText");

PrintLog(component.GetName());

PropertyTools.CallFunction(component.ObjectPtr, "SetXScale", "1.0");

PropertyTools.CallFunction(component.ObjectPtr, "SetYScale", "1.0");

PropertyTools.CallFunction(component.ObjectPtr, strNameOfFunction, strPar1, strPar2)

Call the function with two parameters defined for the component.

PropertyTools.GetProperty(InObjectPtr, InVarPath, Config)

PropertyTools.SetProperty(InObjectPtr, InVarPath, InValue)

Level Sequence Class Commands

LevelSequence(InActorID)

GetALevelSequenceActor(InActorID, index)

GetLevelSequencePlayerFromActor()

Play( )

Play a sequence in a level by actor name.

Example

LevelSequence("MySequence").Play()

Stop()

Pause( )

Pause a sequence in a level by actor name.

Example

LevelSequence("MySequence").Pause()

PlayReverse( )

Play a sequence reversed in a level by actor name.

Example

LevelSequence("MySequence").PlayReverse()

PlayToSeconds(seconds)

Play a sequence until the outpoint in a level by actor name and value.

Example

LevelSequence("MySequence").PlayToSeconds(5.0)

ScrubToSeconds(seconds)

Seek a sequence in a level by actor name and value in seconds.

Example

LevelSequence("MySequence").ScrubToSeconds(1.0)

PlayRate(playRate)

Set the play speed of the sequence. The play rate is 1.0 based. 1.0 is the default speed, 2.0 is 2x times the speed, 0.5 is half of the speed.

Example:

LevelSequence("MySequence").PlayRate(1.0)

TimeRange(startTime, duration)

Set the sequence time from and time end values to play a smaller sequence by sequence name in seconds.

Example:

LevelSequence("Sequence").TimeRange(1.0, 5.0)

GoToEndAndStop()

GetPlayRate()

ChangePlaybackDirection()

IsPlaying()

IsPaused()

IsReversed()

CheckPlayer()

Ab Switch Class Commands

MtABSwitch(InActorID)

There are general commands and per-player commands

Parameters between "[ ]" are optional.

General Commands:

SetEffectDuration (InDuration)

Example:

MtABSwitch("CH_ABSwitch_1").SetEffectDuration(5.0)

StartTransition([InEffectName], [InDuration])

Example:

MtABSwitch("CH_ABSwitch_1").StartTransition()

MtABSwitch("CH_ABSwitch_1").StartTransition("WipeLeft")

MtABSwitch("CH_ABSwitch_1").StartTransition("Fade", 10)

SetEffectByName(InEffectName)

GetEffectList()

PrintEffectList()

GetEffectScalarParametersName()

PrintEffectScalarParametersName()

SendCurrentStatusToDataEngine(InRequestID)

SetEffectScalarParameter(InParameterName, InValue)

Player commands:

There are 3 players: Program, Preview, Transition

Program = MediaPlayer(self.ObjectPtr.Program.Player)

Preview = MediaPlayer(self.ObjectPtr.Preview.Player)

Transition = MediaPlayer(self.ObjectPtr.Transition.Player)

OpenFile(InFilePath)

Example:

MtABSwitch("CH_ABSwitch_1").Program.OpenFile("D:/content/testclip.mpg");

MtABSwitch("CH_ABSwitch_1").Preview.OpenFile("D:/content/testimage.png");

OpenUrl(InUrl)

Example:

MtABSwitch("CH_ABSwitch_1").Program.OpenUrl("DaveShm://InputA");

MtABSwitch("CH_ABSwitch_1").Preview.OpenUrl("File://D:/content/testclip.mpg");

Play( )

Example:

MtABSwitch("CH_ABSwitch_1").Program.Play();

MtABSwitch("CH_ABSwitch_1").Preview.Play();

Pause( )

Example:

MtABSwitch("CH_ABSwitch_1").Program.Pause();

MtABSwitch("CH_ABSwitch_1").Preview.Pause();

Rewind( )

Example:

MtABSwitch("CH_ABSwitch_1").Program.Rewind();

MtABSwitch("CH_ABSwitch_1").Preview.Rewind();

SetLooping(bIsLooping)

Example:

MtABSwitch("CH_ABSwitch_1").Program.SetLooping(true);

MtABSwitch("CH_ABSwitch_1").Preview.SetLooping(false);

IsLooping( )

Example:

local isProgramLooping = MtABSwitch("CH_ABSwitch_1").Program.IsLooping();

local isPreviewLooping = MtABSwitch("CH_ABSwitch_1").Preview.IsLooping();

IsPlaying( )

Example:

local isProgramPlaying = MtABSwitch("CH_ABSwitch_1").Program.IsPlaying("");

local isPreviewPlaying = MtABSwitch("CH_ABSwitch_1").Preview.IsPlaying("");

SetRate(InRate)

Example:

MtABSwitch("CH_ABSwitch_1").Program.SetRate(2.0);

MtABSwitch("CH_ABSwitch_1").Preview.SetRate(0.5);

Cesium Camera Class Commands

CesiumCamera(InActorID, index)

Synchronize()

AddActorToForeground(InActorName, index)

Adds the actor to the camera's key channel

Example:

CesiumCamera("CesiumCamera", true).AddActorToForeground("Chair", true)

RemoveActorFromForeground(InActorName, index)

Removes the actor from the camera's key channel

Example:

CesiumCamera("CesiumCamera", true).RemoveActorFromForeground("Chair", true)

AddActorToMatte(InActorName, index)

Adds the actor to the key channel but hides it from the fill channel

Example:

CesiumCamera("CesiumCamera", true).AddActorToMatte("Chair", true)

RemoveActorFromMatte(InActorName, index)

Removes the actor from the key channel and puts it again in the fill channel

Example:

CesiumCamera("CesiumCamera", true).RemoveActorFromMatte("Chair", true)

TransitionToTracklessSnapshot(Duration, ProjectName, SnapshotName)

Transition the Cesium Camera to the snapshot created in Mercury/Trackless

Example:

CesiumCamera("CH_CesiumCamera_3").TransitionToTracklessSnapshot(5,"Show5","snapshot2")

TransitionToTracked (Duration, CameraIndex)

Transition the Cesium Camera to tracking location with the specified index

Example:

CesiumCamera("CH_CesiumCamera_3").TransitionToTracked(5,0)

Data Engine Commands

DataEngine.Connect(InHostname, InPort, InBucket, InKey)

DataEngine.Close()

DataEngine.Reconnect()

DataEngine.IsConnected()

DataEngine.WriteToKey(Bucket, Key, Value)

Write the value to the Bucket/Key of the engines currently connected to DataEngine

Example:

DataEngine.WriteToKey("TestBucket", "TestKey", ToFString("TestString !"))

Levels Commands

LevelShow(SubLevelName)

Only works for sublevels while in PIE

Shows the sublevel (needs to be loaded)

Example:

LevelShow("MySubLevel")

LevelHide(SubLevelName)

Only works for sublevels while in PIE

Hides the sublevel (needs to be loaded)

Example:

LevelHide("MySubLevel")

OpenLevel(levelName)

Permanently opens a level by its name

Example:

OpenLevel("NewLevel")

OpenLevelFast(levelName)

Temporarily opens a level by its name. Works only in PIE, can be faster than OpenLevel

Example:

OpenLevelFast("NewLevel")

Editor Commands

StartPIE()

Starts the Play in editor (PIE)

StopPIE()

Stops the Play in editor (PIE)

OpenProject (projectPath)

Opens the project if the provided path is valid. VSAR needs to be already running.

Example:

OpenProject("C:\\VSAR\\Temp\\MyProject5\\MyProject5.uproject")

Io Commands

Output(OutputName)

SetResolutionScaler(InResolutionScaler)

Sets the resolution scaler for upscaling or downscaling the output resolution

Example

Output("Hal_0_0").SetResolutionScaler(1.5)

SetHorizontalGenlockPhase(InSetHorizontalGenlockPhase)

Sets the horizontal genlock phase

Example:

Output("Hal_0_0").SetHorizontalGenlockPhase(3)

SetVerticalGenlockPhase(InVerticalGenlockPhase)

Sets the vertical genlock phase

Example:

Output("Hal_0_0").SetVerticalGenlockPhase(3)

SetFrameDelay(InFrameDelay)

Sets the frame delay for "use as sync" output

Example:

Output("Hal_0_0").SetFrameDelay(6)

Logging Commands

PrintLog(Str)

Prints the string as a "Log" verbosity (grey)

Example:

PrintLog(42)

PrintLog(Actor("Chair", true))

PrintLog_Warning(Str)

Prints the string as a "Warning" verbosity (yellow)

Example:

PrintLog_Warning(42)

PrintLog_Warning(Actor("Chair", true))

PrintLog_Error(Str)

Prints the string as an "Error" verbosity (red)

Example:

PrintLog_Error(42)

PrintLog_Error(Actor("Chair", true))

Conversion Commands

ToFString(str)

Converts a string to FString

ToFVector(x, y, z)

Converts x, y, z to FVector

ToFVector2D(x, y)

Converts x, y to FVector2D

ToFRotator(pitch, yaw, roll)

Converts pitch, yaw, roll to FRotator

ToFLinearColor(r, g, b, a)

Converts r, g, b, a to FLinearColor

FromFString(str)

Converts back FString to Lua

FromFVector(Vec)

Converts back FVector to Lua

FromFRotator(Rot)

Converts back FRotator to Lua

Remote Control Tools Commands

RemoteControlTools()

GetActorList()

GetBlueprintActorList()

GetCamioActorList()

GetLevelSequenceList()

GetActorFunctionsList(InObject)

GetBlueprintFunctionsList(InObject)

GetBlueprintFunctionArgumentList(InObject, InFunctionName)

GetActorProperties(InObject)

GetComponentProperties(InObject)

FVector(InFVector)

FRotator(InFRotator)

Chyron Panels Tools Commands

ChyronPanelsTools()

Request(InKey, InRequestID, InData)

GetActorList(InRequestID)

GetActorProperties(InActorID, InRequestID)

GetBlueprintActorList(InRequestID)

GetCamioActorList(InRequestID)

GetLevelSequenceList(InRequestID)

GetActorFunctions(InActorID, InRequestID)

GetBlueprintFunctions(InActorID, InRequestID)

GetBlueprintFunctionArguments(InActorID, InFunctionName, InRequestID)

Primitive Commands

MtTextPrimitive(InActorID, InComponentName)

SetText(textValue)

Output API Commands

OutputAPI()

GetAllPrimitiveComponents(OutBucket, OutKey)

ABOUT US

Chyron is ushering in the next generation of storytelling in the digital age. Founded in 1966, the company pioneered broadcast titling and graphics systems. With a strong foundation built on over 50 years of innovation and efficiency, the name Chyron is synonymous with broadcast graphics. Chyron continues that legacy as a global leader focused on customer-centric broadcast solutions. Today, the company offers production professionals the industry's most comprehensive software portfolio for designing, sharing, and playing live graphics to air with ease. Chyron products are increasingly deployed to empower OTA & OTT workflows and deliver richer, more immersive experiences for audiences and sports fans in the arena, at home, or on the go.

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